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10/015,404	12/12/2001	Takashi Ito	S004-4479	4066

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EXAMINER
EDWARDS, ANTHONY Q

ART UNIT	PAPER NUMBER
2835	

DATE MAILED: 04/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/015,404	ITO ET AL.	
	Examiner	Art Unit	
	Anthony Q. Edwards	2835	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 March 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7,9,10,12,13 and 16-34* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) *1-7,9,10,12,13,16-23,33 and 34* is/are rejected.

7)☒ Claim(s) *24-32* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *03 January 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 3, 5, 7, 9, 12, 13, 16-23, 33 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,260,915 to Houlihan in view of U.S. Patent No. 5,386,215 to Brown. Referring to claims 1 and 21, Houlihan discloses an arm wearable communication device (10). The device comprises a case (20b), a wireless communication circuit contained in the device (see U.S. Patent No. 4,847,818 to Olsen, which is incorporated by reference in Houlihan), a wearable body (20a, 20c) pivotally mounted to the case (20b) to enable wearing of the communication device on a user's arm (see Figs. 1 and 2), a sound unit (52) provided in the wearable body (20c), and an antenna (13, 14) provided in the wearable body (see col. 3, lines 30-33 of Olsen for the disclosure an antenna provided in the wearable body disposed between the sound unit and the wireless circuitry), wherein the antenna is disposed between the sound unit (52) and the wireless communication circuit and which is provided in the wearable body.

Houlihan does not specifically disclose the antenna (13, 14) as a "chip" antenna. Brown discloses a planar chip antenna (see Fig. 5 and col. 2, lines 39-45) on a periodic dielectric structure, comprising a substrate (104) and an antenna pattern (108) on the substrate, the chip antenna having a directivity in one direction that is substantially perpendicular to the antenna pattern (which would include a direction opposing the user's arm when the device is being worn)

to minimize interference. See Figs. 1B and 2, as well as col. 6, lines 3-11. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the arm wearable communication device of Houlihan to include a chip antenna on a periodic dielectric structure, as taught by Brown to reduce trapping of the power signal from the device of Houlihan, thereby allowing more efficient radiating and receiving of signals.

Referring to claim 3, Houihan in view of Brown disclose an arm wearable communication device (10), wherein the wearable body (20a, 20c) has a curved part having a curvature, which is smaller than a curvature of a part of the user's arm when the curved part of the wearable body is held to the user's arm, and the chip antenna is provided in the curved part. See FIG. 2 and the corresponding specification.

Referring to claims 5 and 7, Houlihan in view of Brown disclose the wearable communication device, including a dielectric chip antenna comprising a substrate (104) formed of a mixture of a high dielectric material and a resin, and a conductive foil (108) pattern formed on the substrate. See Fig. 5 and col. 2, lines 39-45 of Brown.

Referring to claim 9, Houlihan in view of Brown disclose an arm wearable communication device, wherein the body (20a, 20cc) comprises a wrist strap. See Figs. 1 and 2 of Houlihan.

Referring to claim 12, Houlihan in view of Brown disclose an arm wearable communication device, further comprising a display (42) and operating buttons (44) for controlling the wireless communication circuit provided in a front surface of the case. See Figs. 1 and 2 of Houlihan.

Referring to claim 13, Houlihan in view of Brown disclose an arm wearable communication device, wherein the wearable body has a pair of substantially C-shaped members at first ends of the opposite sides of the case (see FIG. 2), and wherein the chip antenna comprises a chip antenna contained in each C-shaped member. See Olsen, which is incorporated by reference in Houlihan, for antenna contained in opposite sides of the case.

Referring to claim 16, Houlihan in view of Brown disclose an arm wearable communication device, wherein the wireless communication circuit comprises a telephone. See column 1, lines 20-25 of Houlihan.

Referring to claim 17, Houlihan in view of Brown disclose an arm wearable communication device, wherein a portion of the wearable body (20a, 20c) in which the chip antenna is provided does not have a coating formed thereon that would shield reception of a signal in the vicinity of the chip antenna. It is noted that although the padding (22) of Houlihan may be interpreted as a coating, that coating does not shield reception of a signal according to shielding structures known in the art.

Referring to claims 18-20, the arm wearable communication device of Houlihan in view of Brown includes a coating or padding (22), which does not shield reception of a signal in the vicinity of the chip antenna (see column 3, lines 15-19 of Houlihan). Although Houlihan in view of Brown does not specifically teach the coating formed of ceramic or acrylic glass, the Examiner takes Official Notice that such construction is well known and conventional in the art of arm wearable communication devices. It would have obvious to one of ordinary skill in the art at the time the invention was made to provide a coating of ceramic material or acrylic glass

on the arm wearable communication device of Houlihan in view of Brown to provide a scratch resistant outer cover thereto without creating signal shielding effects.

Referring to claim 22, Houihan in view of Brown disclose an arm wearable communication device, wherein the dielectric chip antenna (101) comprises a substrate (104), and an antenna pattern (108) on the substrate.

Referring to claim 23, Houihan in view of Brown disclose an arm wearable communication device, wherein the directivity of the dielectric chip antenna (101) is perpendicular to the antenna pattern. See Fig. 2 and col. 6, lines 3-11.

Claims 2, 4, 6 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Houlihan in view of Brown, and further in view of U.S. Patent No. 5,943,020 to Liebendoerfer Referring to claim 2, Houlihan, as modified, discloses all the claimed elements, except for the communication device adapted to compare the reception states of signals that are respectively obtained from chip antennae provided in a pair of bodies attached to opposite sides of the case. Liebendoerfer discloses positioning two or more antenna to accomplish diversity reception (see column 6, lines 8-11 and 34-53). It would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify the wearable communication device of Houlihan to include a pair of antennae, each provided in the wearable body portions and adapted to compare reception states of signals, as taught by Liebendoerfer to provide dual frequency mode reception or diversity reception in a radiotelephone.

Referring to claim 4, Houlihan as modified, in view of Liebendoerfer disclose an arm wearable communication device, wherein the wearable body has a curved part having a curvature which is smaller than a curvature of a part of the user's arm when the curved part of the wearable

body is held to the user's arm, and the antenna is provided in the curved part (see Fig. 2 of Houlihan).

Referring to claim 6, Houlihan, as modified, in view of Liebendoerfer disclose an arm wearable communication device, including a dielectric chip antenna comprising a substrate formed of a mixture of a high dielectric material and a resin, and a conductive foil pattern formed on the substrate. See Fig. 5 and col. 2, lines 39-45 of Brown.

Referring to claim 10, Houlihan, as modified, in view of Liebendoerfer, wherein the wearable bodies (20a, 20c) comprise connectable parts (i.e., at 30a and 30b) of a wrist strap. See Figs. 2-4 of Houlihan.

Allowable Subject Matter

Claims 24-32 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The following is a statement of reasons for the indication of allowable subject matter: the primary reason for allowance of claim 24 the specific limitation of a ground pattern provided on the substrate. These features, in combination with the rest of the elements or steps, are not taught or suggested by the prior art references. Claims 25-32 depend, either directly or indirectly, from claim 24 and are therefore allowable for at least the reasons provided above.

Response to Arguments

Applicant's arguments with respect to claims 1-7, 9, 10, 12, 13 and 16-34 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony Q. Edwards whose telephone number is 571-272-2042. The examiner can normally be reached on M-F (7:30-3:00) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren Schuberg can be reached on 571-272-2800, ext. 35. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

April 1, 2004
aqe

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